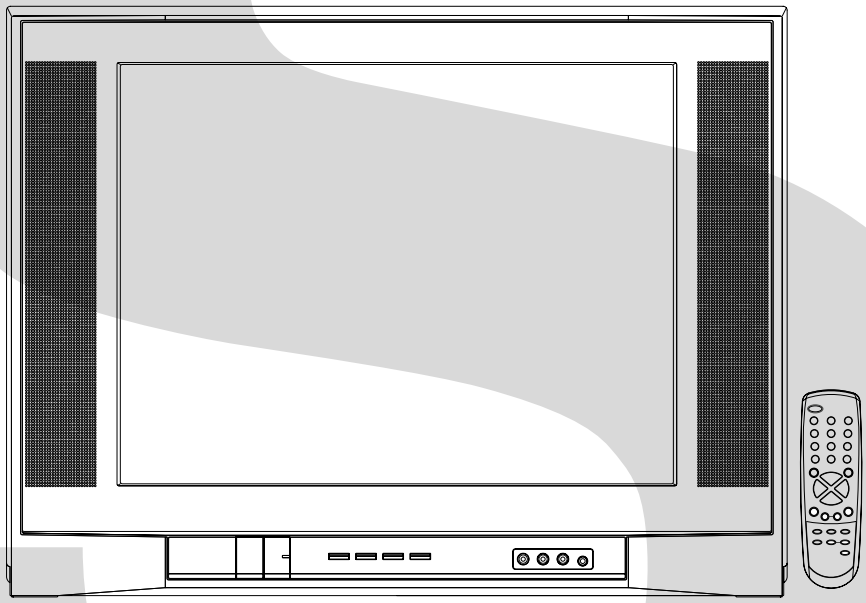
TOSHIBA

FILE NO. 050-200504
(MFR'S VERSION A)

SERVICE MANUAL

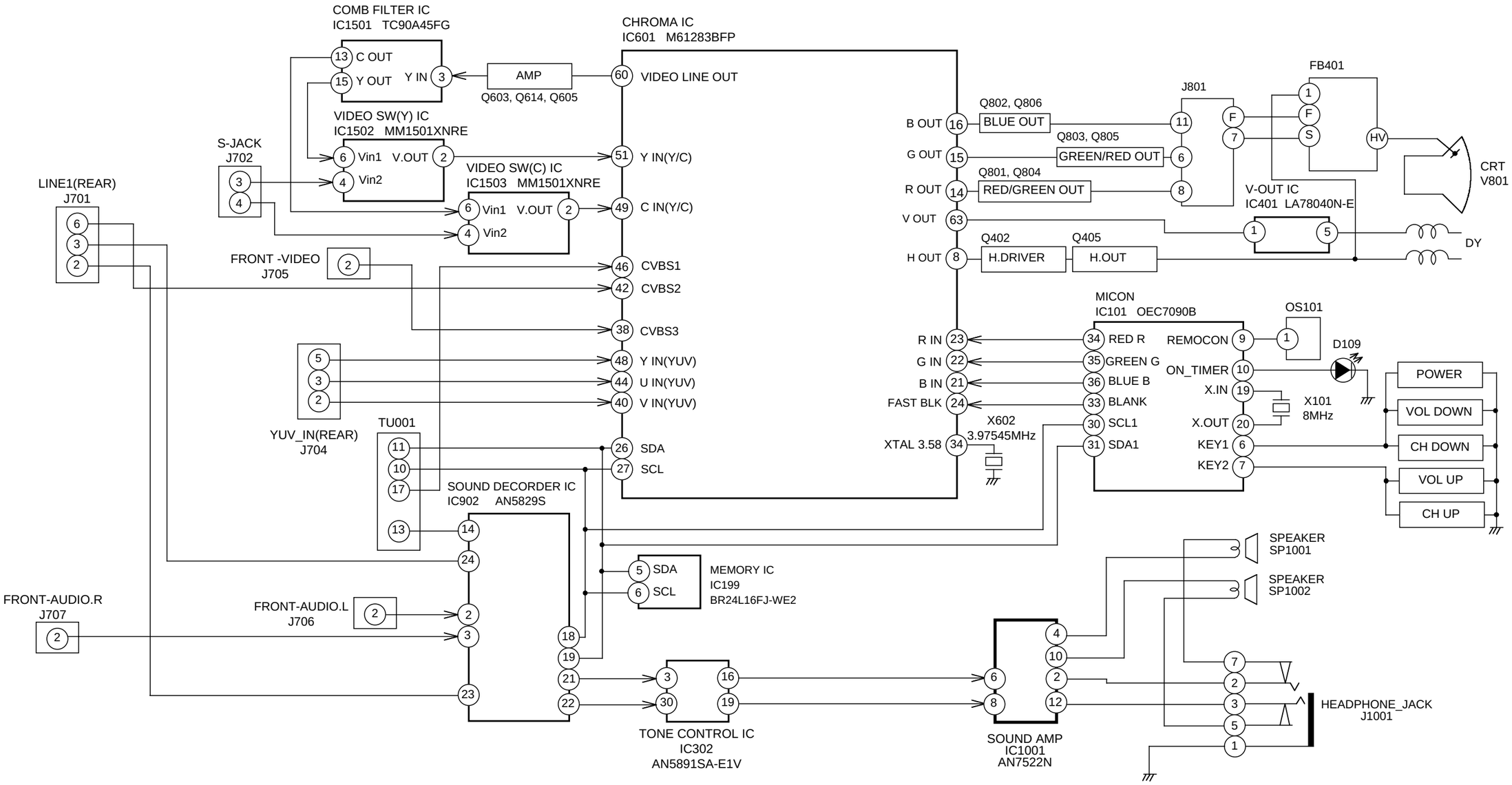
COLOR TELEVISION

20AF45
20AF45C

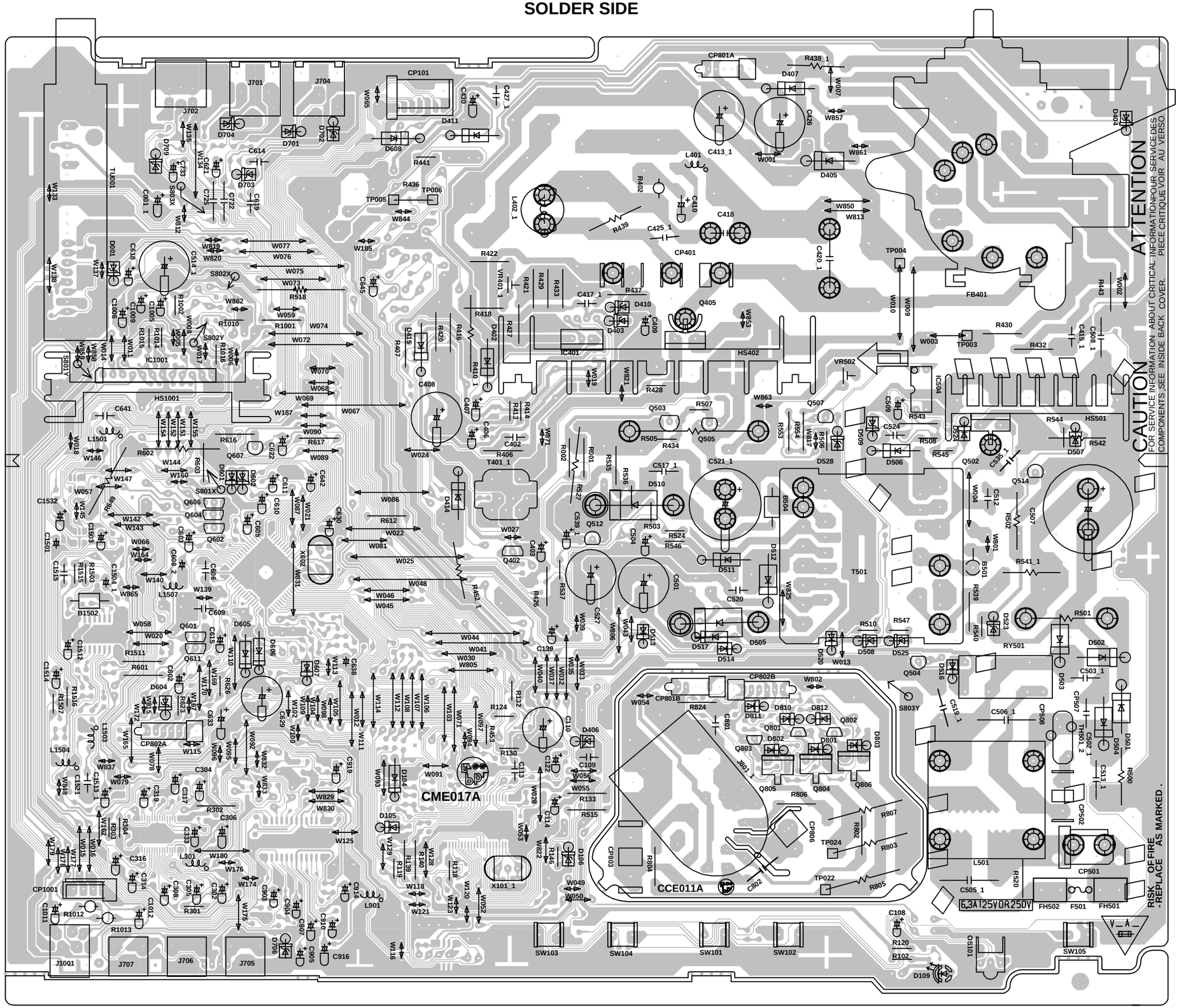


DOCUMENT CREATED IN JAPAN, February, 2005

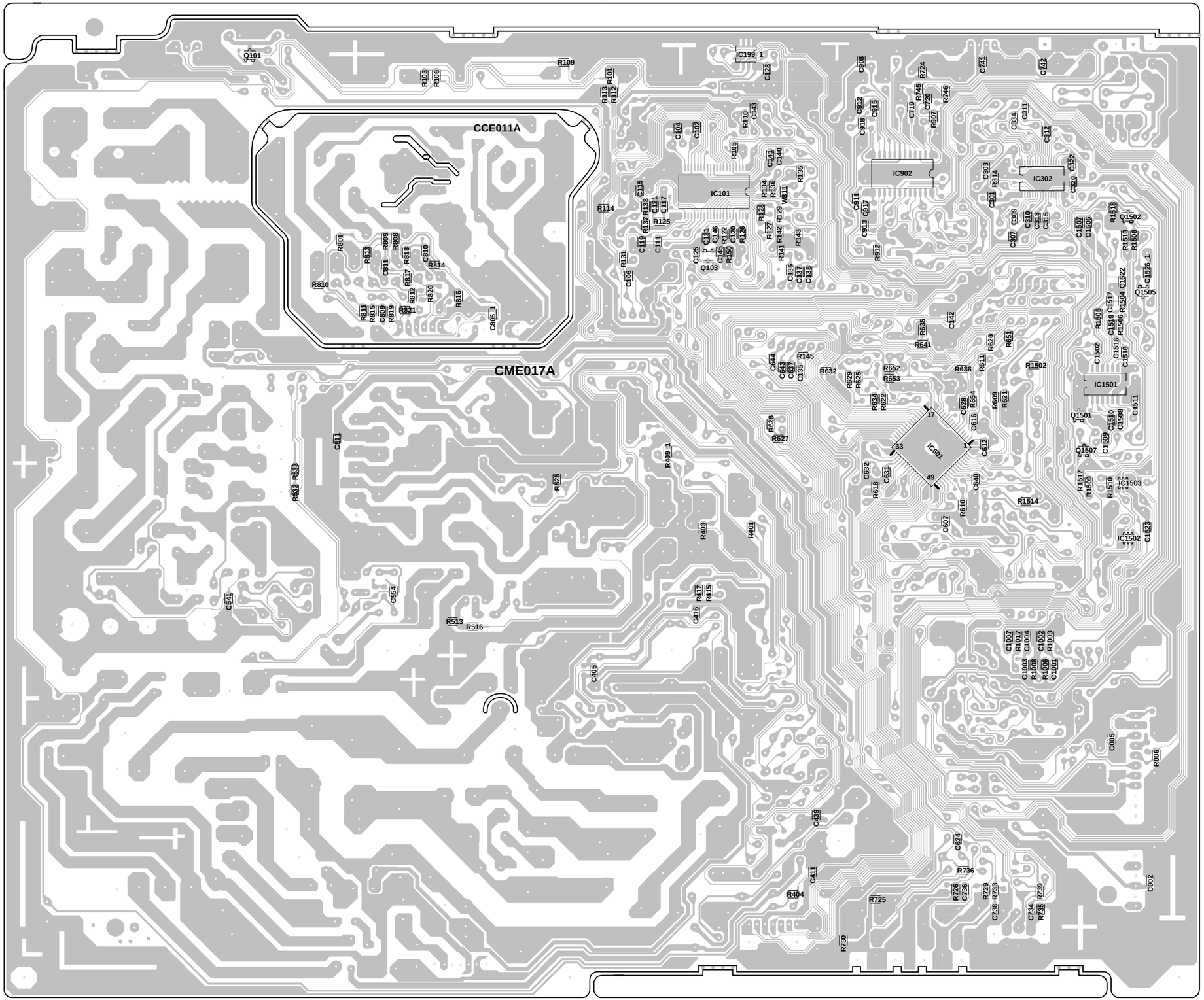
BLOCK DIAGRAM



PRINTED CIRCUIT BOARDS
MAIN/CRT (INSERTED PARTS)
SOLDER SIDE


CME017A
CCE011A
CAUTION
ATTENTION
FOR SERVICE INFORMATION ABOUT CRITICAL INFORMATIONPOUR SERVICEDES COMPONENTS ,SEE INSIDE BACK COVER. PIECE CRITIQUE VOIR AU VERSO.
RISK OF FIRE - REPLACE AS MARKED .
6.3A125V OR 250V

PRINTED CIRCUIT BOARDS
MAIN/CRT (CHIP MOUNTED PARTS)
SOLDER SIDE



MICON SCHEMATIC DIAGRAM
(MAIN PCB)

ACCESSORY
BT001 GR03X-SP2
BT002 GR03X-SP2
TM101 RC-GQ020

POWER ON D109 SLR-342VC/T32
LED SW Q101 KTC3875S_Y_RTK
R102 47K 270 1/4W
R109 1K
R120 47K 1/4W
OS101 RPM7138-WH5 (B+ 5.0, GND 0, Vout 4.9)
C108 47uF 10 KA 25V

R101 560
R103 2.7K
R106 560
CH UP SW101 EVQ21505R
VOL UP SW102 EVQ21505R
CH DOWN SW103 EVQ21505R
VOL DOWN SW104 EVQ21505R
POWER SW105 EVQ21505R

MICON IC
IC101 OEC7090B

1	AUDIO MUTE	5.0	
2	EXT MUTE	4.0	
3	VOLUME	0	
4	BBE SW	0	
5	AFT	3.2	
6	KEY 1	5.0	
7	KEY 2	5.0	
8	X RAY	2.2	
9	REMOCON	5.0	
10	ON_TIMER	0	
11	S_IN	0	
12	Y/C_SW	0	
13	AUDIO_SW	5.0	
14	NC	0 NC	
15	P FAIL	3.5	
16	DEGAUSS H	5.0	
17	X-RAY TEST	3.2 NC	
18	CNVSS	0	
19	X.IN	2.3	
20	X.OUT	1.7	
21	VSS	0	
22	H_CTL	0	
23	PROTEC	0	
24	12C_OFF	5.0	
25	SYNC	2.1	
26	H SYNC	4.0	
27	V SYNC	4.8	
28	BLUE B	0	
29	GREEN G	0	
30	RED R	0	
31	BLANK	0	
32	CLOCK_CNT	5.0 NC	
33	SDA1	5.0	
34	SCL1	5.0	
35	POWER	5.0	
36	MCU_CLOCK	5.0	
37	RESET	5.0	
38	CVIN	2.4	
39	VHOLD	2.0	
40	HLF	2.0	
41	FILT	1.0	
42	VCC	5.0	

R146 100 1/4W
R124 1K 1/4W
R130 47K 1/4W
C145 220P CH
C125 0.001 B
R150 1K
R122 1K
CLAMP SW Q103 KTC3875S_Y_RTK
C120 0.001 B
R126 100
C146 33P CH
C142 220P CH
C143 220P CH
R118 2.2K 1/4W
R110 10K
R112 2.2K
R113 2.2K
R114 47K
R119 22K 1/4W
C140 220P CH
C141 220P CH
C139 47uF 10 KA 25V
C106 0.1 B
D106 MTZJ5.1B
C102 27P CH
C104 27P CH
X101_1 100CT8R005 8MHz
C109 0.1 B
C110 2200uF YK 6.3V
R137 10K
C114 0.47uF KA 50V
C115 820P CH
C113 0.1 B
C111 0.001 B
R131 1K
C119 220P CH
C122 1uF 50V KA
R125 10
C117 47P CH
C121 0.01 B
R132 100 1/4W
R138 1M
R133 1K 1/4W
C128 0.1 F
W822
C136 0.1 B
C137 0.1 B
C138 0.1 B
D104 1SS133
D105 1SS133
W811
C131 150P CH
R127 6.8K
R128 6.8K
R129 6.8K
R141 1.5K
R142 1.5K
R143 1.5K
R145 2.2K
C135 10P CH
R135 4.7K
R136 4.7K
R139 100 1/4W
R140 100 1/4W
R134 10K

MEMORY IC IC102 BR24L16FJ-WE2

5	SDA	5.0	
6	SCL	5.0	
7	MODE	0	
8	VCC	5.0	
4	VSS	0	
3	E2	0	
2	E1	0	
1	E0	0	

TEST POINT
CP101 173979-7

GND	1
I2C_SCL	2
I2C_SDA	3
I2C_OFF	4
GND	5
AUDIO L	6
AUDIO R	7

FROM/TO CHROMA
AT+5V
PROTECT
CLAMP_OFF
SYNC_OUT
HD
VD
OSD_B
OSD_G
OSD_R
OSD_BLK
SW_Y_OUT
RESET
POWER
SDA
SCL

FROM/TO TUNER/STEREO
J_AUDIO_OUT_R
J_AUDIO_OUT_L
SDA
SCL

FROM/TO SOUND
SDA
SCL

TO SOUND
TV_MUTE
VOLUME

FROM TUNER/STEREO
AFT

FROM/TO COMB FILTER/AV
S_IN
Y/C_SW

FROM/TO DEFLECTION
H_CTL
X-RAY

FROM/TO POWER
X-RAY
P.FAIL
DEGAUSS_H
GND
POWER

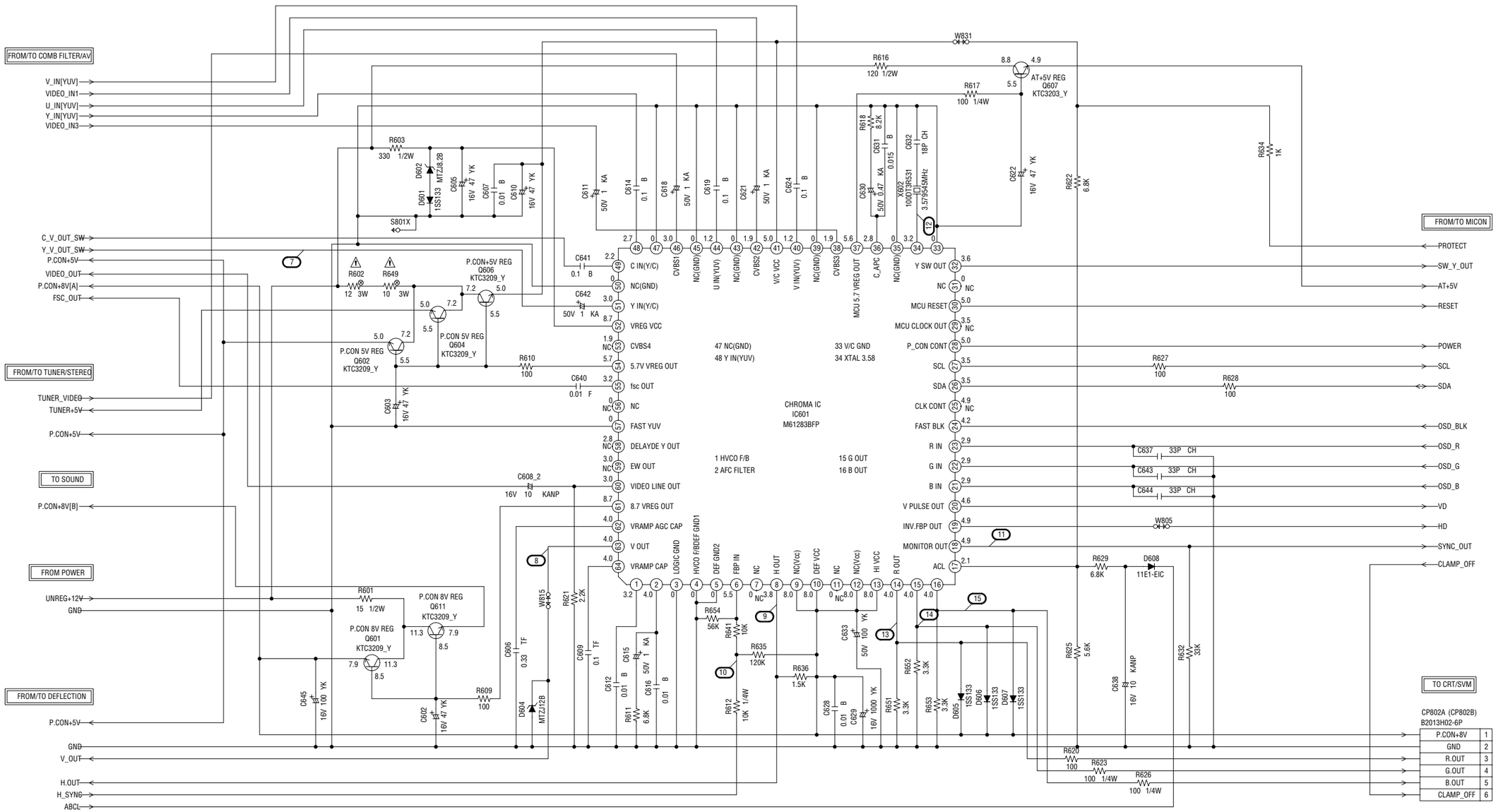
PCB010
CME017

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

CHROMA SCHEMATIC DIAGRAM

(MAIN PCB)



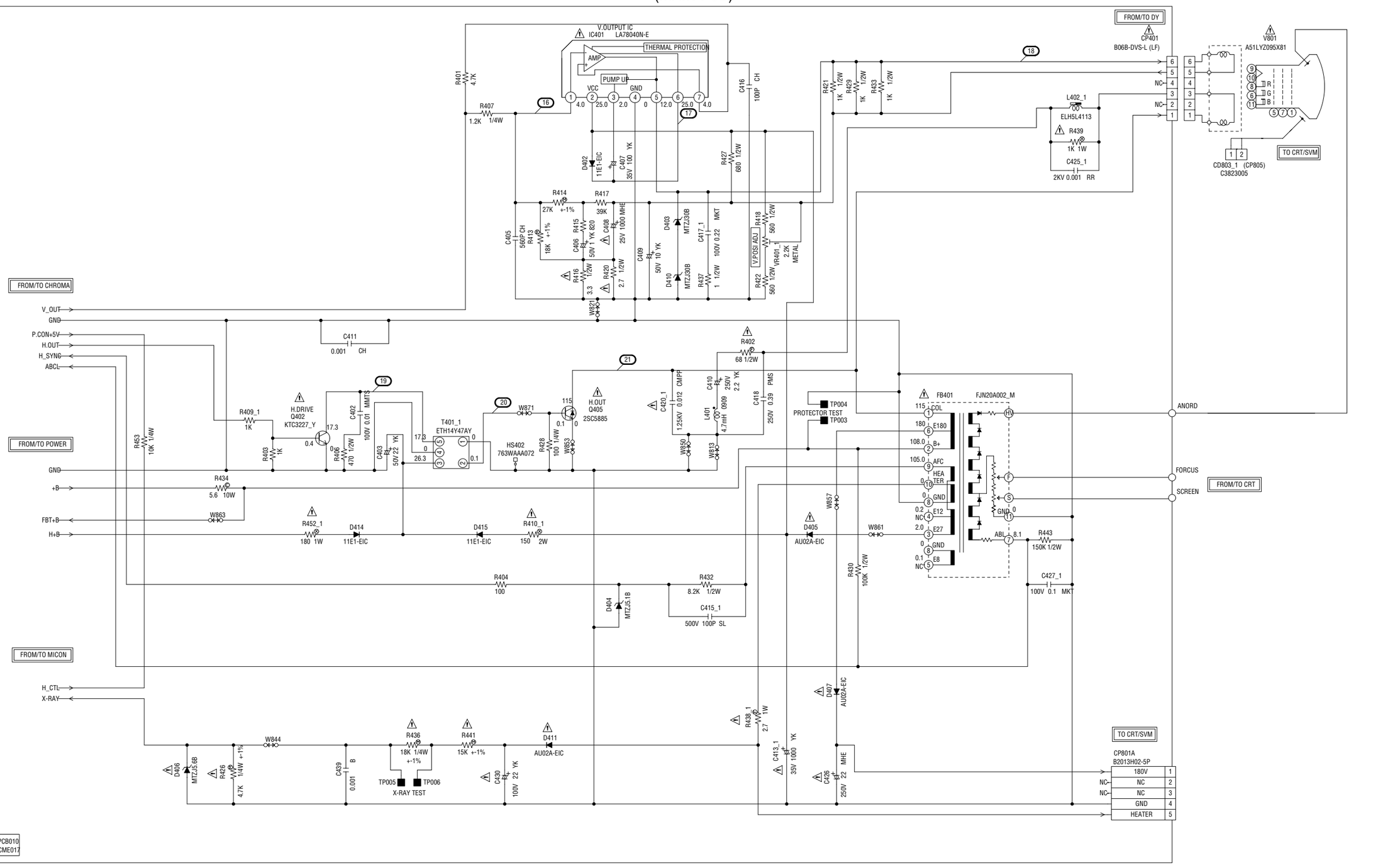
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY 。

DEFLECTION SCHEMATIC DIAGRAM
(MAIN PCB)



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

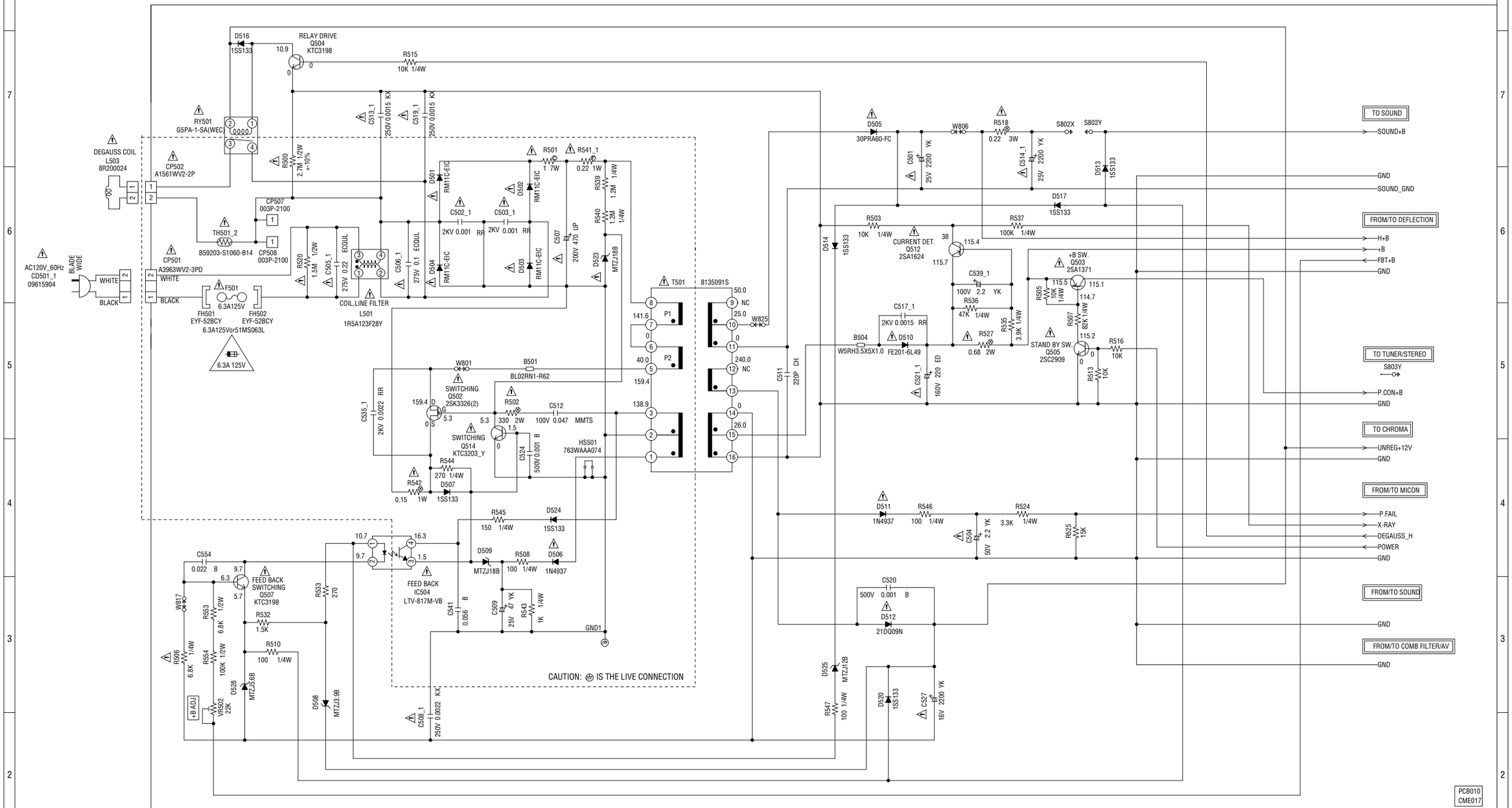
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY 。

POWER SCHEMATIC DIAGRAM
(MAIN PCB)



6.3A 125V

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE 6.3A 125V(F501)

ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE N'UTILISER QUE DES FUSIBLE DE MEME TYPE 6.3A 125V(F501)

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

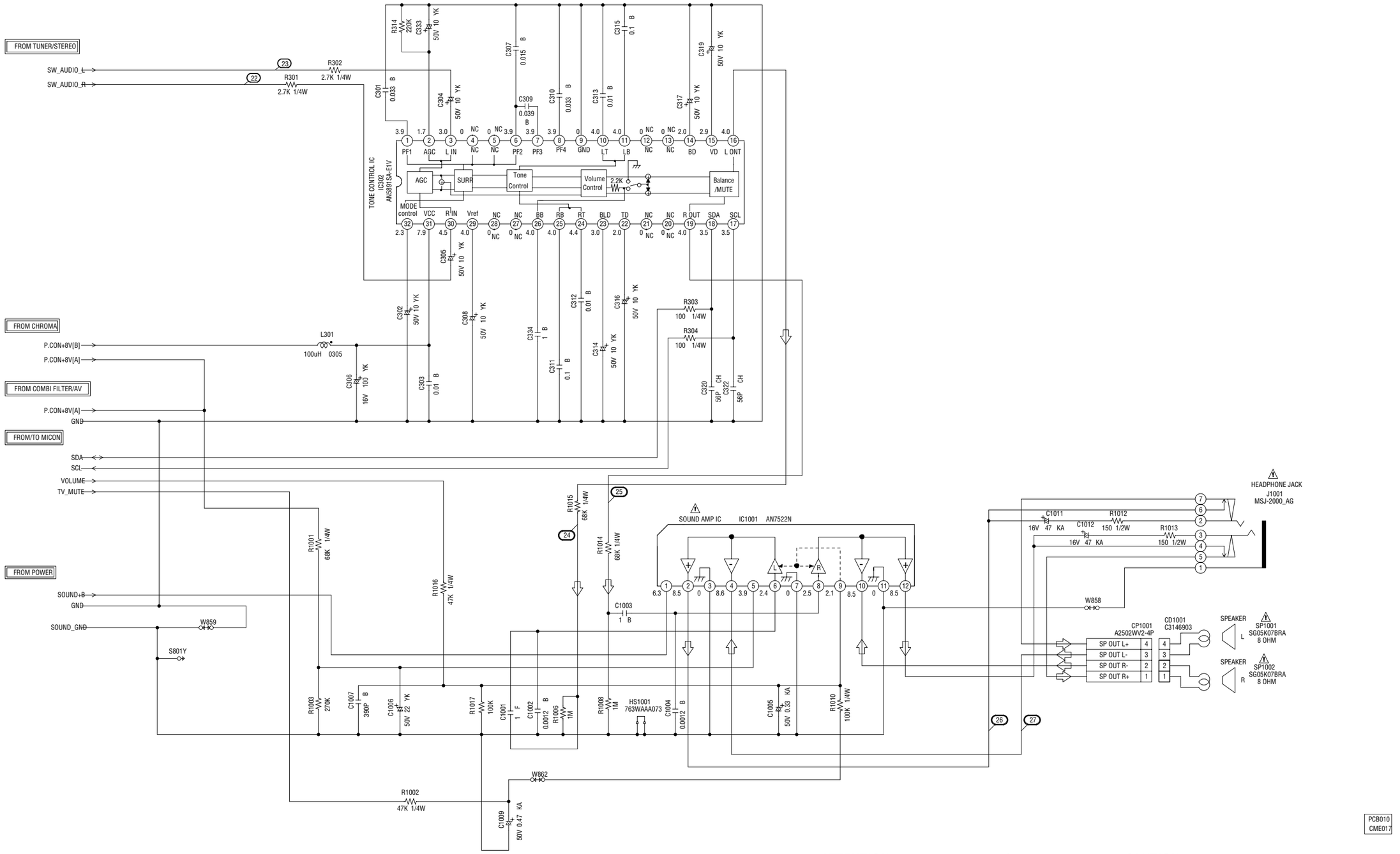
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

SOUND SCHEMATIC DIAGRAM
(MAIN PCB)



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

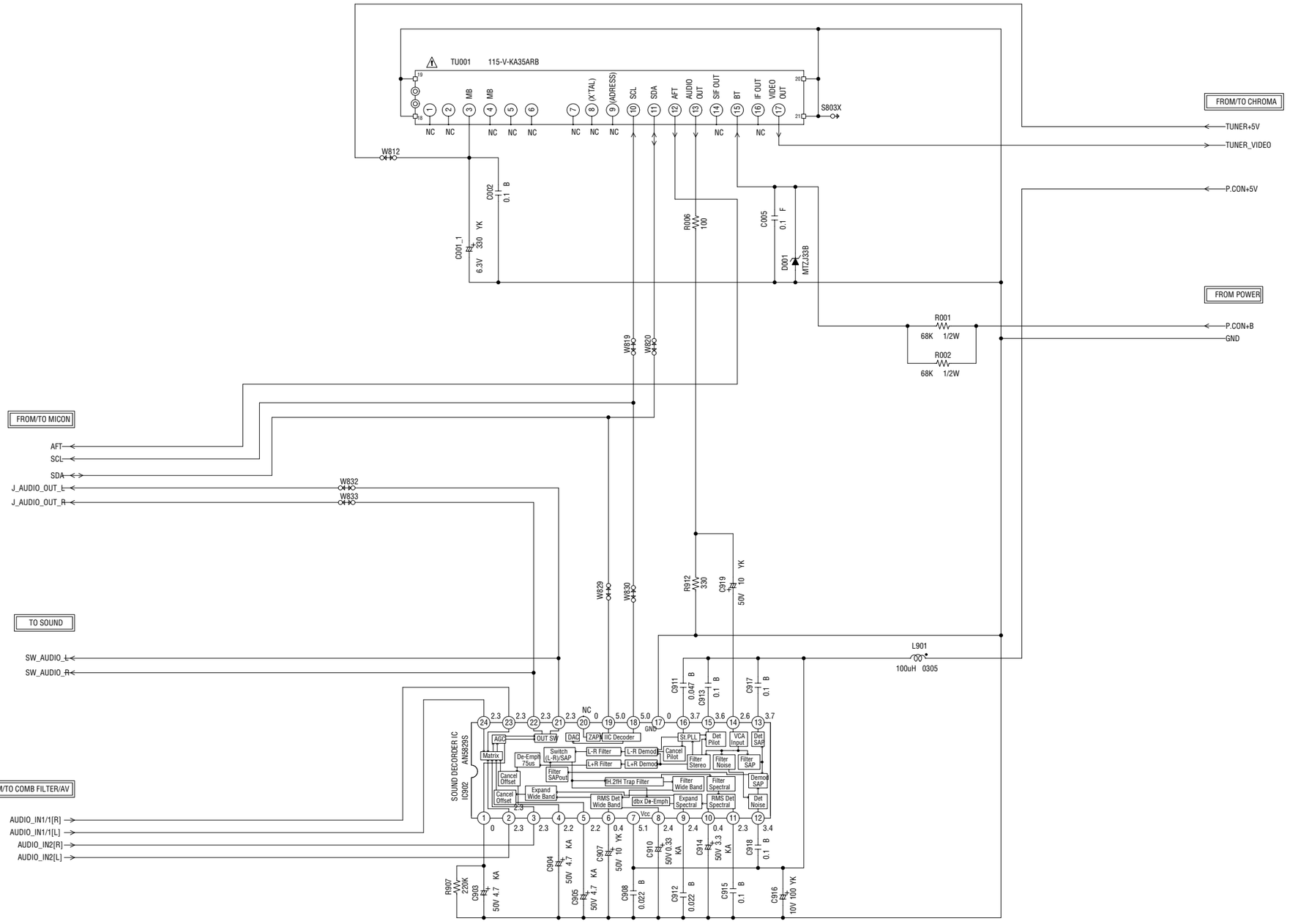
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY 。

⇦ AUDIO SIGNAL

TUNER/STEREO SCHEMATIC DIAGRAM
(MAIN PCB)



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

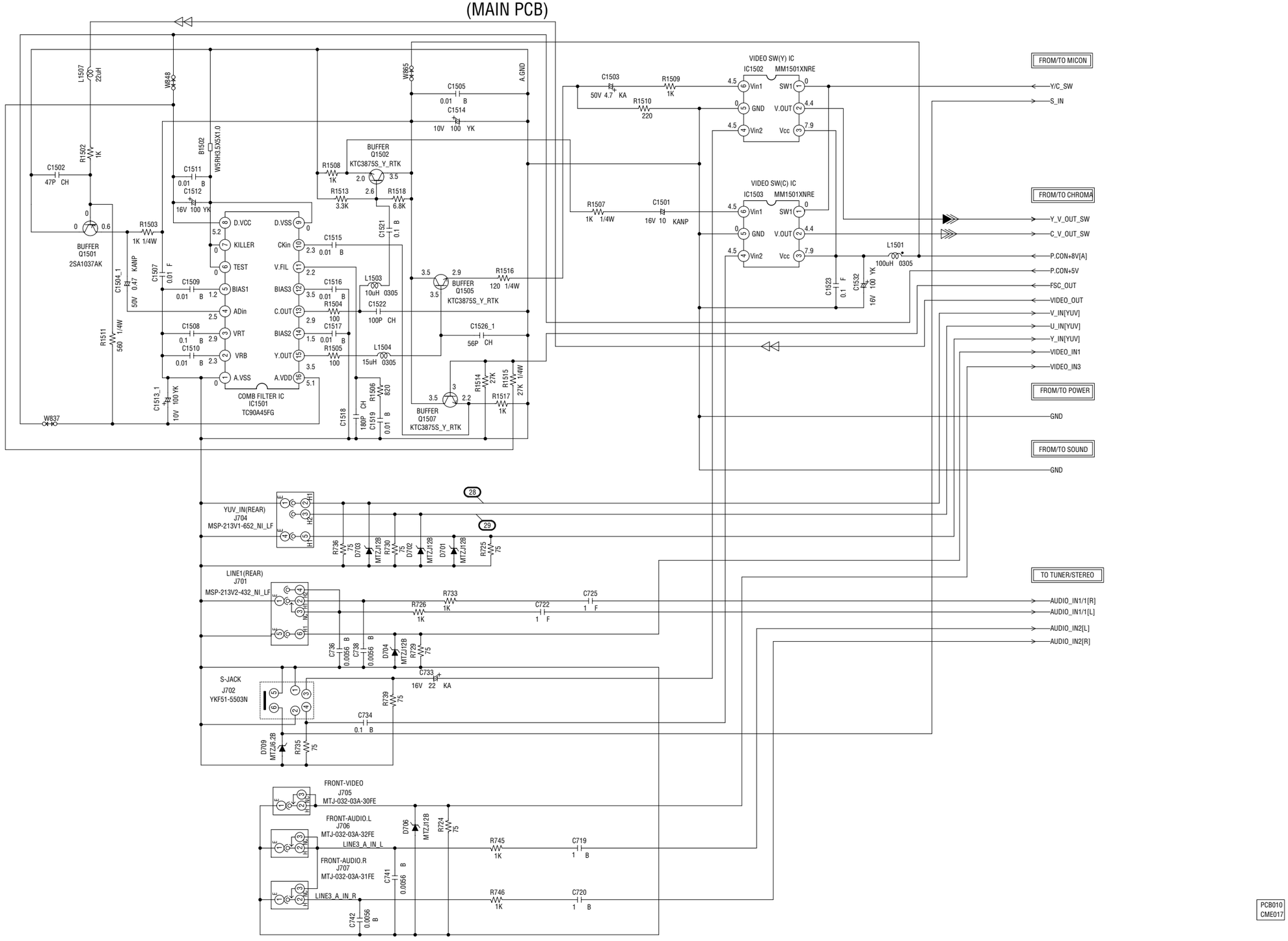
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY 。

COMB FILTER/AV SCHEMATIC DIAGRAM

(MAIN PCB)

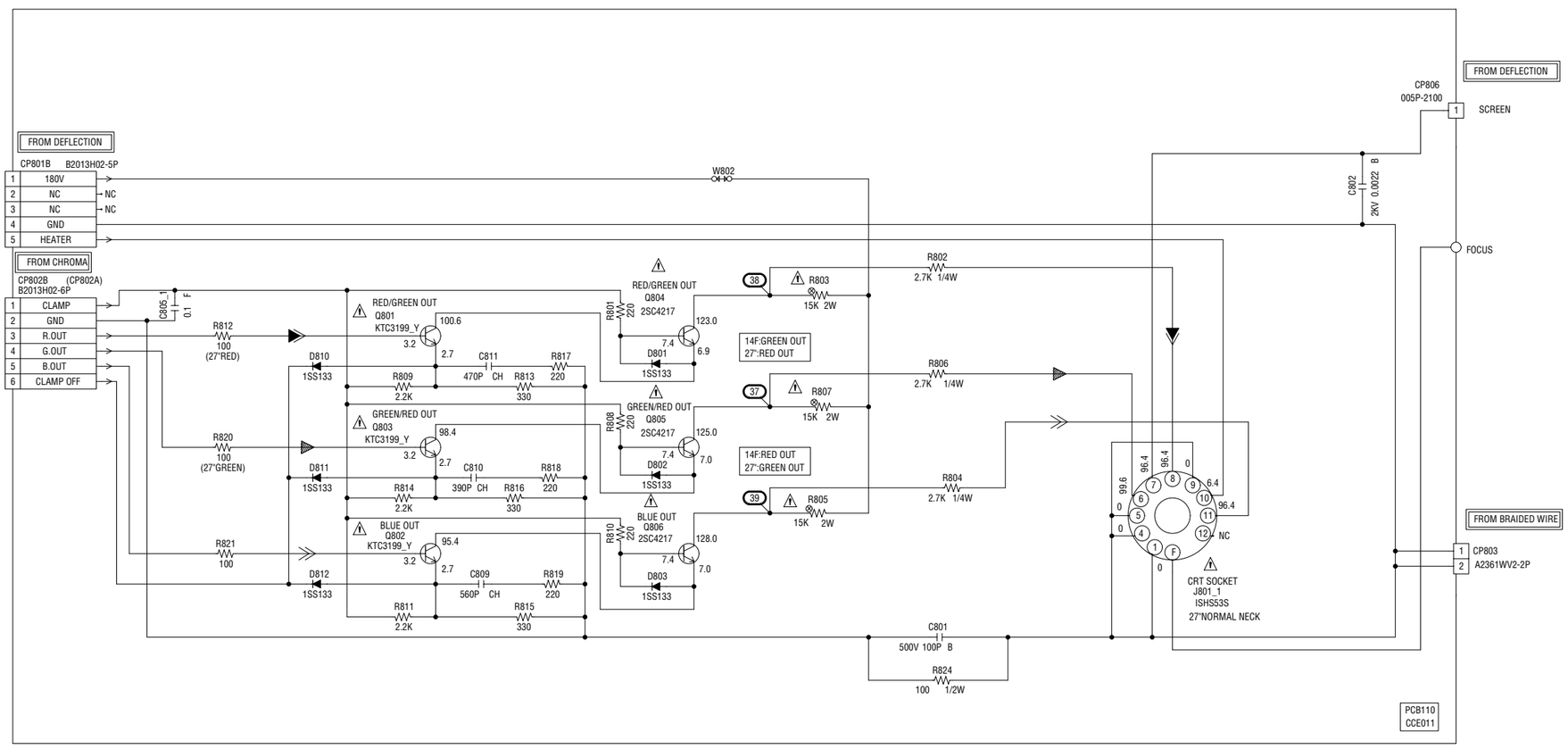


NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE:THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

LUMINANCE SIGNAL
COLOR SIGNAL
TUNER VIDEO SIGNAL

CRT SCHEMATIC DIAGRAM
(CRT PCB)



NOTE:THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

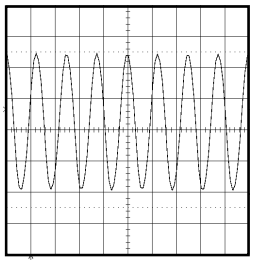
CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

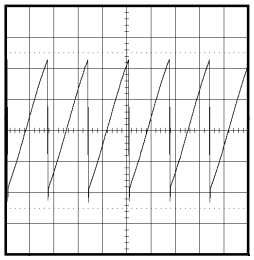
◀ R.SIGNAL
◀ G.SIGNAL
≪ B.SIGNAL

WAVEFORMS

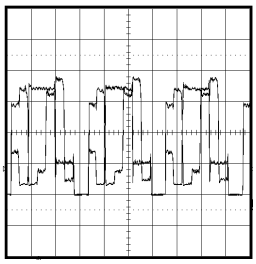
MICON



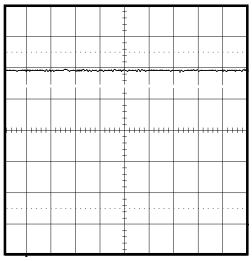
① 1V 0.1µs/div



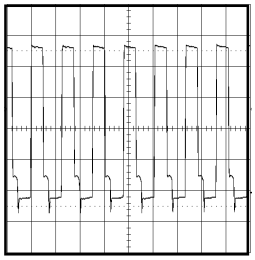
⑧ 0.5V 10ms/div



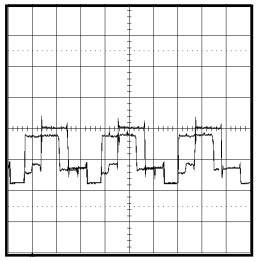
⑬ 1V 20µs/div



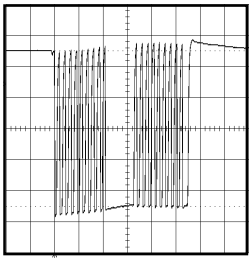
② 1V 1µs/div



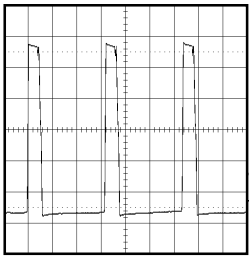
⑨ 1V 50µs/div



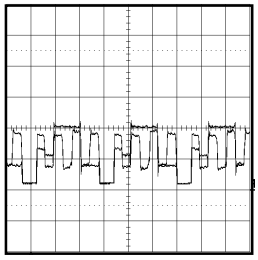
⑭ 2V 20µs/div



③ 1V 50µs/div

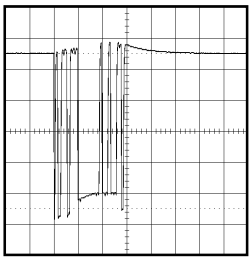


⑩ 2V 20µs/div

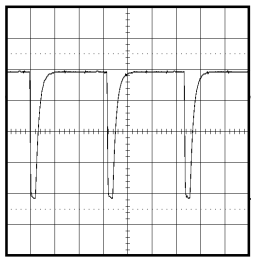


⑮ 2V 20µs/div

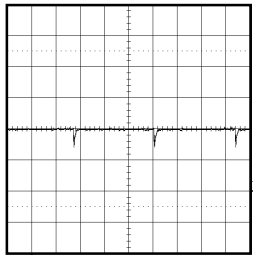
DEFLECTION



④ 1V 0.1ms/div

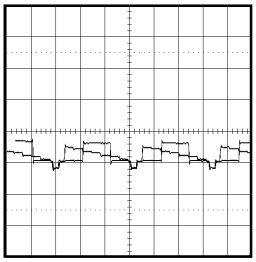


⑪ 0.5V 20µs/div

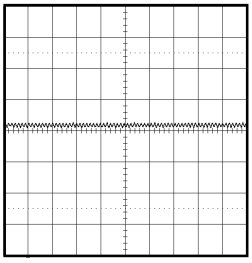


⑯ 2V 5ms/div

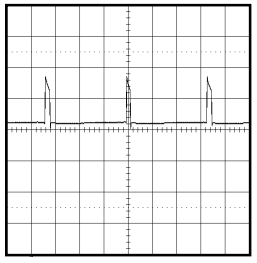
CHROMA



⑦ 1V 20µs/div



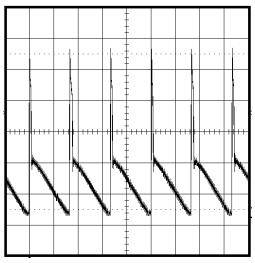
⑫ 1V 2µs/div



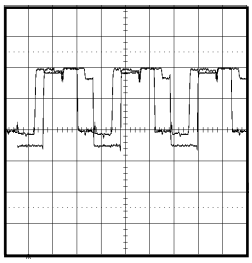
⑰ 20V 5ms/div

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

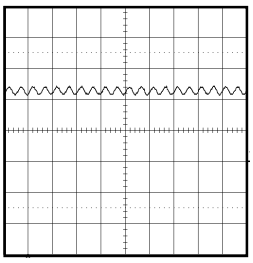
WAVEFORMS



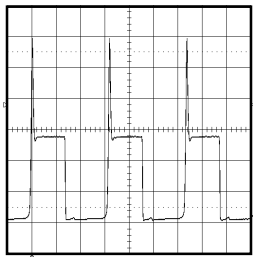
(18) 10V 10ms/div



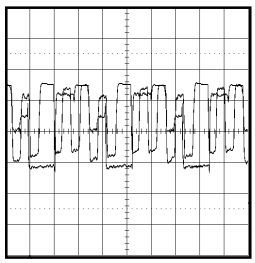
(38) 50V 20µs/div



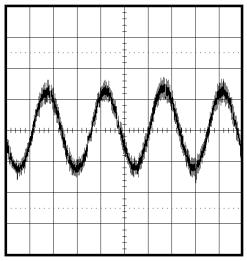
(25) 2V 5ms/div



(19) 20V 20µs/div

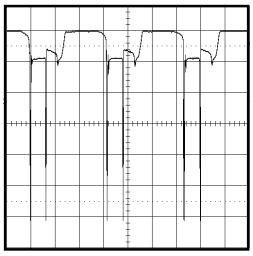


(39) 50V 20µs/div

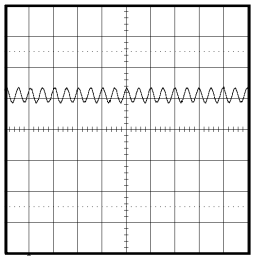


(26) 0.5V 1ms/div

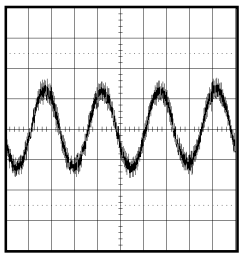
SOUND



(20) 2V 20µs/div

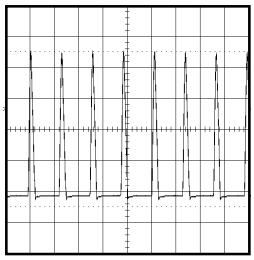


(22) 2V 5ms/div

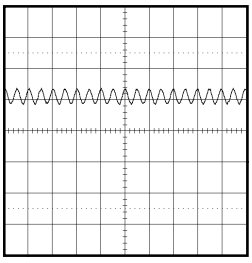


(27) 0.5V 1ms/div

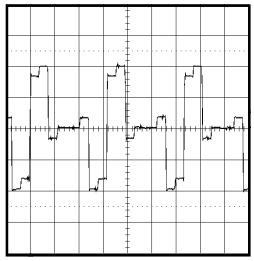
COMB/FILTER/AV



(21) 200V 50µs/div

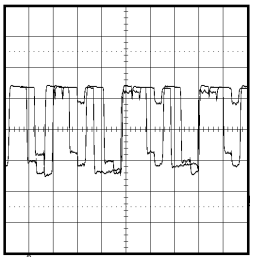


(23) 2V 5ms/div

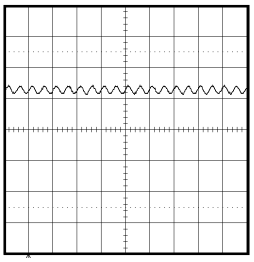


(28) 200mV 20µs/div

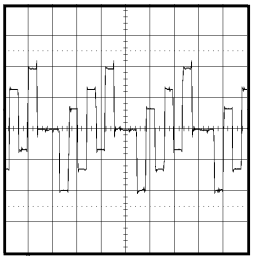
CRT



(37) 50V 20µs/div



(24) 2V 5ms/div



(29) 200mV 20µs/div

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.